Remarks

The Applicants note the Examiner's helpful comment concerning the Specification. The Applicants have made a number of minor amendments to the Specification and respectfully request that they be added into the Official File. The Applicants have amended Claim 1 so that the catalyst is recited as "consisting essentially of" instead of "comprising" at least one compound selected from the group consisting of compounds (a), (b), (c) and (d) as defined in Claim 1.

The Applicants note the rejection of Claims 1 – 7 and 12 – 15 under 35 U.S.C. §102 as being anticipated by Scriabine. The Applicants note the Examiner's helpful comments concerning the theoretical application of Scriabine to Claims 1 – 7 and 12 – 15. The Applicants respectfully submit that Scriabine is inapplicable to Claims 1 – 7 and 12 – 15 for the reasons set forth below in detail.

The Applicants' catalysts for the process defined in Claim 1 consist essentially of at least one member selected from the components (a), (b), (c) and (d). The Applicants' Comparative Examples confirmed that, when the catalyst contained titanium tetrachloride mixed into boron trifluoride-diethylether complex, the target compound was obtained in a very low yield of 43.1% while, in Examples 1 to 6, the yield of the target compound was 88, 97.1, 84.6, 89.3, 86.8 and 93.8%, respectively.

Comparative Example 2 confirms that, when a catalyst consisted of titanium tetrachloride, the target compound was produced in a yield of 9.8%. Accordingly, it is clear that, in the process defined in Claim 1, the catalyst consists essentially of at least one member selected from the components (a) to (d) and is essentially free from a component other than components (a) to (d), particularly, titanium tetrachloride.

In view of the above, it becomes clear to one skilled in the art that titanium tetrachloride materially effects the process set forth in independent Claim 1. This is important *vis-à-vis* the

theoretical application of Scriabine to Claims 1 – 7 and 12 – 15. Scriabine discloses a process for the manufacture of 1-acetoxy-3-(substituted phenyl)propene compound by a reaction of an aromatic hydrocarbon compound with an alkenylidene diacetate in the presence of a catalyst consisting of titanium tetrachloride and in the presence of a promoter consisting of boron trifluoride or a complex compound of boron trifluoride with oxygenated organic compound, which promoter is present in a proportion of 0.005 to 0.1 mole per mol of titanium tetrachloride.

This sharply contrasts to the process defined in Claim 1, i.e., the process of reacting a benzene compound of the formula (IV) or (V) with a 2-alkenylidene diacetate compound of the formula (VI), the catalyst for the reaction consisting essentially of at least one member selected from:

(a) halogenated boron compounds,

(b) triflate compound of Group 11 elements of the Periodic Table,

(c) halogenated compound of Group 12 elements of the Periodic Table, and

(d) triflate compounds and halogenated compounds of tin and lanthanoid elements of atomic numbers 58 and 66 to 71.

The catalyst is essentially free from substances other than the above-mentioned compounds (a), (b), (c) and (d). Thus, the catalyst for the process of Claim 1 contains no titanium chloride. The Applicants invite the Examiner's attention to Comparative Examples 1 and 3, which comparative examples show that, when a catalyst of the compound (a), particularly boron trifluoride-diethylether complex, is mixed with titanium tetrachloride, the yield of the target compound is greatly decreased in comparison with the cases in which no titanium tetrachloride is mixed into the catalysts as defined in Claim 1.

Also, it should be noted that titanium tetrachloride is easily decomposed with water or moisture present in the ambient air atmosphere and, thus, is difficult to keep undecomposed and to

handle stably. The process of Claim 1 is free of titanium tetrachloride.

The Applicants' Claim 1 recites that the catalyst consists essentially of at least one of the (a), (b) and (c) compounds. The Applicants have also demonstrated that titanium tetrachloride, as a catalyst, materially effects the process. Inasmuch as the Applicants' use of "consisting essentially of" excludes compounds that have a material effect, the Applicants respectfully submit that Scriabine is inapplicable and fails to anticipate rejected Claims 1 – 7 and 12 – 15. Withdrawal of the §102 rejection of those claims is respectfully requested.

The Applicants note the rejection of Claims 1 and 8 – 10 under 35 U.S.C. §103 over Scriabine '247 and Evans. The Applicants respectfully submit that neither Scriabine '247 nor Evans provides teachings or suggestions to one skilled in the art that would lead to the subject matter of Claims 1 and 8 – 10. Reasons are set forth below.

This is sharply contrasted to the process of Claim 1, where no asymmetric aldol reaction occurs. In the process of Claim 1, the reaction of a benzene compound of the formula (IV) or (V) with a 2-alkenylidene diacetate compound of the formula (VI) is carried out in accordance with the Friedel-Crafts reaction. This is readily understood by those skilled in the art.

Those skilled in the art also readily know that the considerations between an asymmetric aldol reaction and a Friedel-Crafts reaction are quite different. Therefore, the catalysts for an asymmetric aldol reaction do not in any way teach or suggest a catalyst for a Friedel-Crafts reaction.

There is another serious problem with Evans. That problem is that Evans is quite silent as to the reaction of the benzene compound with a 2-alkenylidene diacetate compound. Thus, Evans is completely silent as to any advantage of the process of Claim 1 using the specific catalyst of Claim 1 for the Friedel-Crafts reaction of a benzene compound with the 2-alkenylidene diacetate.

The Applicants respectfully submit that Evans fails to provide teachings or suggestions to those skilled in the art that catalysts employed for an asymmetric aldol reaction would have any benefit in a Friedel-Crafts reaction and further fails to teach or suggest reacting a benzene compound with a 2-alkenylidene diacetate compound. The Applicants therefore respectfully submit that one skilled in the art would hardly be led to the subject matter of Claims 1 and 8 – 10 based on the disclosure of Evans. The Applicants therefore respectfully submit that Evans can not support a rejection under §103. Withdrawal of the rejection is respectfully requested.

With respect to Scriabine '247, the Applicants note that the teachings of Scriabine '247 are very, very similar to those of Scriabine, described above. Thus, the Applicants have already established that the titanium tetrahchloride catalyst of Scriabine '247 would actually have a materially detrimental effect on the Applicants' process. Therefore, one skilled in the art would clearly not look to Scriabine '247 in an attempt to obtain the subject matter of Claims 1 and 8 – 10. The Applicants therefore respectfully submit that Scriabine '247 is utterly inapplicable to Claims 1 and 8 – 10 and respectfully request that the rejection be withdrawn.

By way of summary with respect to Evans and Scriabine '247, the Applicants respectfully submit that they both fail to teach or suggest the subject matter of Claims 1 and 8 – 10.

The catalyst of Scriabine '247 is inappropriate for the process of Claim 1 because the titanium tetrachloride mixed in boron halogenate complex causes the yield of the target compound to be greatly decreased as shown in Comparative Examples 1 and 3 of the Applicants' Specification.

Claim 1 excludes a titanium tetrachloride catalyst. Also, Evans does not teach or suggest that a tin compound active as a catalyst for the asymmetric aldol reaction of β-keto imide would also be active for the Friedel-Crafts reaction of the benzene compound with the 2-alkenylidene diacetate for the production of 1-acetoxy-3-(substituted phenyl)propene compound.

Accordingly, the Applicants respectfully submit that Evans does not provide motivation to one skilled in the art to use a tin halide compound as a catalyst for a reaction between a benzene compound and the 2-alkenylidene diacetate for the process of Claim 1.

In light of the foregoing, the Applicants respectfully submit that the entire Application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,

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